5/26/88

Material Safety Data Sheet

Uniroyal Chemical Company, Inc.
World Headquarters
Middlebury, CT 06749

UNIROYAL Emergency Phone: (203) 723-3670
CHEMTREC Transportation Emergency Phone: 1-800-424-9300
SAFETY DATA Information (203) 573-3303

MSDS No. C261001 Date Issued: 9/12/85

103104

IDENTIFICATION

Trade Name: NAUGEX® MBTS

CAS Number: 120-78-5

Chemical Name: 2,2'-dibenzothiazolyl disulfide

Chemical Family: Thiazole

SDMS DocID 000218097

Superfund Records Center
Peterson Rm 1.4
e 12047

SPECIAL REGULATORY HAZARDS

Ingredient	CAS No.	Exposure Limit	OSHA (1910.1200)	EEC*
Product	120-78-5	ND	Irritant	Irritant

Hazard assessment based on available data.

Transportation: NA

PHYSICAL DATA

Appearance and Odor: Pale yellow powder; characteristic odor

Solubility: Slightly soluble in water
Moderately soluble in benzene

Melting Point: 320°F (160°C)

Boiling Point: NA

Other Data: NA

Specific Gravity (H_2O = 1): 1.53

Vapor Pressure @ 20°C. NA

Vapor Density (Air = 1): NA

Volatility @ 70°F: Low

FIRE AND EXPLOSION HAZARD DATA

Flash Point: 518°F (271°C) COC

Autoignition Temp: ND

Extinguishing Media: Water spray, dry chemical

Flammable Limits: NA

Special Fire Fighting Procedures: Protect against inhalation of combustion products.

Unusual Hazards: May form explosive dust-air mixtures.

REACTIVITY DATA

Stability: Stable at ambient temperatures and pressures.

Incompatibility: Strong oxidizing agents.

Decomposition Products: **Thermal:** Various thiazole fragments, plus sulfur **Combustion:** Oxides of carbon, nitrogen, and sulfur.

NA = Not Applicable ND = Not Determined *European Economic Community

R.T. Vanderbilt Company, Inc.
INDUSTRIAL MINERALS AND CHEMICALS
30 Winfield Street, Norwalk, CT 06855 • (203) 853-1400 • TWX 710-468-2940
West Coast: 6279 East Slauson Avenue, Los Angeles, CA 90040 • (213) 723-5208.

MATERIAL SAFETY DATA SHEET

D.M.F. 10/26/83 12377

DATE: January 31, 1983

SECTION I

CHEMICAL NAME AND SYNONYMS	EMERGENCY TELEPHONE NO.
Tetramethylthiuram disulfide; Thiram	(203)853-1400
CHEMICAL FAMILY: Thiuram	
FORMULA: $C_6H_{12}N_2S_4$	
TRADE NAME AND SYNONYMS: METHYL TUADS®	

SECTION II INGREDIENTS

MATERIAL	%	TOXICITY DATA
Tetramethylthioperoxydicarbamic diamide, CAS Reg. No.	98	TLV - 5 mg/m^3
137-26-8		Oral LDL_o 50 mg/kg
		humans
Oil antidusting	2	

SECTION III PHYSICAL DATA

BOILING POINT (°F.)		DENSITY Mg/m^3	1.42
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER	Negligible		
APPEARANCE AND ODOR	White to cream powder		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED) 150°C (300°F)COC)	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA: CO_2, foam, dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES: Self-contained breathing apparatus			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	5mg/m^3
EFFECTS OF OVEREXPOSURE	May cause irritation of skin and eyes.
EMERGENCY AND FIRST AID PROCEDURES	Ingestion: Induce vomiting - call physician if subject has used alcohol within 48 hrs. Eyes: irrigate with water - call physician. Skin: wash with soap and water. Inhalation: expose to fresh air.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (MATERIALS TO AVOID)	Strong acids, reducing agents		
HAZARDOUS DECOMPOSITION PRODUCTS	CO_2, CS_2, SO_2, NO at composition temperature.		
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Sweep spillage - wash residuals with soap and water - transfer to a closed container.
WASTE DISPOSAL METHOD	According to CRCA 40 CFR Section 261.33(f)

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)	Supplied air respirator or chemical cartridge respirator at ≤50 mg/m^3		
VENTILATION	LOCAL EXHAUST	X	SPECIAL
	MECHANICAL (GENERAL)		OTHER
PROTECTIVE GLOVES	Rubber	EYE PROTECTION	Goggles
OTHER PROTECTIVE EQUIPMENT			

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in a cool place
OTHER PRECAUTIONS	Avoid ingestion of alcohol while handling material.

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R. T. VANDERBILT COMPANY, INC.
Industrial Minerals and Chemicals
30 Winfield Street
Norwalk, CT 06855
(203) 853-1400 TWX 710-468-2940

MATERIAL SAFETY DATA SHEET

Customer Info:

Date: 05/24/88 Revised: 10/31/85 Supersedes: 06/18/85

I. PRODUCT IDENTIFICATION F74403

Trade Name: ZETAX*

Chemical Name: Zinc 2-mercaptobenzothiazole

Synonyms: 2(3H) - Benzothiazolethione, zinc salt
CAS Reg. No. 155-04-4 ← NON - MSL

Hazardous Ingredients/OSHA: None

Hazard: None

Carcinogenic Ingredients/OSHA/NTP/IARC: None

II. WARNING STATEMENTS

WARNING! May irritate or sensitize skin.

III. PHYSICAL AND CHEMICAL DATA

Appearance and Odor: Cream to pale yellow powder

Density, at 25 deg C, Mg/cu m: 1.70

Solubility in Water: Negligible

(* - Registered in U.S. Patent and Trademark Office)

IV. FIRE PROTECTION

Flash Point (deg C/deg F): N/A

NFPA ID SYSTEM
1
2 0

Extinguishing Media: Water, foam, carbon dioxide, dry chemical

Special Firefighting Procedure: NIOSH-approved self-contained breathing apparatus

Unusual Fire Hazard: When exposed to flame, emits acrid fumes. Dust may form explosive mixture with air

V. REACTIVITY DATA

Thermal Stability: Stable

Materials to Avoid: To prevent formation of suspect carcinogenic nitrosamines, do not use with nitrosating agents

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: Oxides of carbon, nitrogen, sulfur and zinc upon combustion

VI. HEALTH HAZARD DATA

Exposure Limits:

For Product - Not established. Use Nuisance Dust Standard

OSHA TWA 5 mg/cu m - Respirable Dust
15 mg/cu m - Total Dust

ACGIH TWA 5 mg/cu m - Respirable Dust
10 mg/cu m - Total Dust

Effects of Overexposure:

This product may cause eye, skin and upper respiratory irritation with prolonged exposure to dust. Continuous skin contact could lead to dermatitis and possible skin sensitization

VII. PHYSIOLOGICAL EFFECTS SUMMARY

Acute oral LD50 540 mg/kg rats

Chronic effects are not known

VIII. PRECAUTIONS FOR SAFE HANDLING

Under dusty conditions, static electricity may cause an explosion. Avoid prolonged and repeated contact with skin. Avoid breathing dust. Use with adequate ventilation

IX. PROTECTION AND CONTROL MEASURES

Protective Equipment: Rubber or PVC gloves, goggles

Respiratory Protection: NIOSH-approved dust respirator if dusty

Ventilation: Sufficient fresh air flow to control dust

X. EMERGENCY AND FIRST AID PROCEDURES

Eye Contact: Flush with water for at least 15 minutes and consult a physician

Skin Contact: Wash with soap and water

Inhalation: Expose to fresh air. Keep warm and quiet. Give artificial respiration

XI. SPILL AND DISPOSAL PROCEDURES

Spill or Leakage Procedure: Sweep, shovel or vacuum into container

Waste Disposal: Not an RCRA waste. Incinerate of dispose in industrial landfill according to applicable environmental regulations

For Additional Information Contact:

Environmental Affairs
R. T. VANDERBILT CO., INC.
30 Winfield Street
P.O. Box 5150
Norwalk, CT 06856
Tel. No.: (203) 853-1400

103369

Material Safety Data Sheet

Uniroyal Chemical Company, Inc.
World Headquarters
Middlebury, CT 06749

UNIROYAL Emergency Phone: (203) 723-3670
CHEMTREC Transportation Emergency Phone: 1-800-424-9300
SAFETY DATA Information (203) 573-3303

MSDS No. C263001 Date Issued: 9/12/85

IDENTIFICATION

Trade Name: METHAZATE®

CAS Number: 137-30-4

Chemical Name: Zinc dimethyldithiocarbamate

Chemical Family: Carbamates

SPECIAL REGULATORY HAZARDS

Ingredient	CAS No.	Exposure Limit	OSHA (1910.1200)	EEC*
Product	137-30-4	ND	Carcinogen (NCI) Irritant	Carcinogen Irritant

Hazard assessment based on available data.

Transportation:
NA

PHYSICAL DATA

Appearance and Odor: Off-white powder; slight odor

Solubility: Slightly soluble in water and organic solvents

Melting Point: 464°F (240°C)

Boiling Point: NA

Other Data: NA

Specific Gravity (H_2O = 1): 1.68

Vapor Pressure @ 20°C. NA

Vapor Density (Air = 1): NA

Volatility @ 70°F: Low

FIRE AND EXPLOSION HAZARD DATA

Flash Point: 200°F (93°C) TCC

Autoignition Temp: ND

Extinguishing Media: Water spray, dry chemical

Flammable Limits: ND

Special Fire Fighting Procedures: Protect against inhalation of combustion products.

Unusual Hazards: May form explosive dust-air mixtures.

REACTIVITY DATA

Stability: Stable at ambient temperatures and pressures.

Incompatibility: Strong oxidizing agents and acids..

Decomposition Products: Oxides of carbon, nitrogen, sulfur and zinc under burning conditions.

NA = Not Applicable ND = Not Determined *European Economic Community

SPECIAL PROTECTION INFORMATION

Engineering Controls: Local exhaust ventilation strongly recommended to minimize dust exposure. Protect closed dust handling systems against possible dust explosions. Avoid dust accumulations on building or equipment surfaces.

Personal Protection Equipment: Avoid all personal contact. Observe good personal hygiene. Impervious gloves and goggles should be worn when handling. In the absence of adequate ventilation, use NIOSH-certified dust cartridge respirator.

STORAGE, SPILLS AND DISPOSAL INFORMATION

Storage: Store away from sources of direct heat in a dry area. Keep containers closed when not in use.

Spills: Sweep or vacuum up. Shovel into secure containers for proper disposal. Avoid creating dust. Use personal protective equipment as outlined above.

Disposal: In accordance with any applicable local, state, or federal regulation regarding organic waste.

Environmental Information: Environmental effects have not been determined.

HEALTH RELATED DATA

Specific Hazard(s): Moderately toxic by oral exposure. Contact with eyes or skin can cause irritation. Exposure can produce an adverse reaction when alcohol is consumed. Experimental animal evidence suggests carcinogenic potential.

Primary Route(s) of Entry: No specific route.

First Aid Procedures: **Eye contact:** Flush with water for 15 minutes. Get medical attention.
Skin contact: Wash thoroughly with soap and water
Inhalation: Remove to fresh air.

Toxicology Information: **Oral toxicity:** LD50 (rats) - 500-1400 g/kg

Dermal toxicity: LD^{50} (rabbits) - > 2 g/kg

Irritation: eye (rabbits) - moderate
skin (rabbits) - slight

Mutagenicity: Ames *Salmonella* - positive
L5178Y Mouse lymphoma - negative

Chronic: The feeding to rats of up to 600 ppm and mice of up to 1200 ppm for two years produced an increased incidence of tumors in both species in an NCI bioassay.

5/26/88 Frank.

UNIROYAL CHEMICAL Material Safety Data Sheet

Uniroyal Chemical Company, Inc.
World Headquarters
Middlebury, CT 06749

UNIROYAL Emergency Phone: (203) 723-3670
CHEMTREC Transportation Emergency Phone: 1-800-424-9300
SAFETY DATA Information (203) 573-3303

MSDS No. C225001 Date Issued: 7/31/85

135503 R-1

IDENTIFICATION

Trade Name: CELOGEN® AZ

CAS Number: 123-77-3

Chemical Name: Azodicarbonamide
applicable to various particle sizes
e.g., 120, 130, 140, 150, 180, 199, 1802, 1902

Chemical Family: Carbonamide

SPECIAL REGULATORY HAZARDS

Ingredient	CAS No.	Exposure Limit	OSHA (1910.1200)	EEC*
Azodicarbonamide	123-77-3	ND	Sensitizer	Sensitizer

Hazard assessment based on available data.

Transportation: NA

PHYSICAL DATA

Appearance and Odor: Yellow-orange powder; characteristic odor

Solubility: Slightly soluble in water.
Decomposes in alkaline solutions

Melting Point: Decomposes at 374-428°F (190-220°C)

Boiling Point: NA

Other Data: —

Specific Gravity (H_2O = 1): 1.66 @ 25/25°C

Vapor Pressure @ 20°C. NA

Vapor Density (Air = 1): NA

Volatility @ 70°F: Not volatile below decomposition temperature

FIRE AND EXPLOSION HAZARD DATA

Flash Point: NA [Decomposes about 374°F (190 °C) without ignition.]

Autoignition Temp: ND

Extinguishing Media: Water spray, dry chemical

Flammable Limits: ND

Special Fire Fighting Procedures: Protect against inhalation of decomposition products.

Unusual Hazards: Large volumes of gas are evolved during decomposition. May form explosive dust-air mixtures.

REACTIVITY DATA

Stability: Stable below decomposition temperature. Keep away from sources of heat, sparks and open flame.

Incompatibility: Strong oxidizers, acids, bases & metallic compounds will reduce decomposition temperature.

Decomposition Products: Major decomposition products are N_2, CO_2, CO, NH_3, & HOCN.

NA = Not Applicable ND = Not Determined *European Economic Community

SPECIAL PROTECTION INFORMATION

Engineering Controls: Local exhaust ventilation is strongly recommended for all hot processing and powder handling. Protect closed handling systems against possible dust explosions. Avoid dust accumulation on building or equipment surfaces.

Personal Protection Equipment: Avoid all personal contact. Observe good personal hygiene. Impervious gloves and goggles should be worn when handling. If ventilation is inadequate, use a NIOSH-certified respirator protection for dust or organic vapor as appropriate.

STORAGE, SPILLS AND DISPOSAL INFORMATION

Storage: Store in a cool, dry area in closed containers. Avoid any source of heat close to 374°F (180°C).

Spills: Sweep or vacuum up. Avoid creating dust. Shovel into secure containers for proper disposal. Use personal protective equipment as outlined above.

Disposal: In accordance with any applicable local, state, or federal regulations regarding organic waste.

Environmental Information: Environmental effects have not been determined.

HEALTH RELATED DATA

Specific Hazard(s): Contact with eyes may cause irritaiton. Repeated minimal inhalation exposure can cause respiratory sensitization and asthma. Exposure to decomposition gases can cause irritation to eyes, lungs, and mucous membranes.

Primary Route(s) of Entry: Inhalation or skin absorption.

First Aid Procedures: **Eye contact:** Flush with water for 15 minutes. Get medical attention.
Skin contact: Wash with soap and water
Inhalation: Remove to fresh air.

Toxicology Information: The following data is for azodicarbonamide:
Oral toxicity: LD50 (rats) - 6.8 g/kg
Dermal toxicity: LD50 (rabbits) - > 2g/kg
Irritation: eye (rabbits) - slight
skin (rabbits) - negative
Sensitization: respiratory - positive based on human experience.
Genotoxicity: Ames *Salmonella* - positive
CHO HGPRT - negative
Rat hepatocyte UDS - negative
Mouse micronucleus - negative

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SO 117521 D
SO-1 117523 A

MATERIAL SAFETY DATA SHEET - CARBON BLACK

SECTION I - IDENTIFICATION

Manufacturer's Name: CABOT CORPORATION
Address: 950 Winter Street, Waltham, MA 02254
Date Prepared: October 1, 1987
HMIS Rating: OH 1F OR

Emergency Telephone Numbers: (617) 663-3455 (Days)
(304) 665-2442 (Nights & Weekends)

Chemical Name: Carbon black
Formula: C
Trade Names: BLACK PEARLS® ELFTEX® MOGUL® CSX MONARCH® REGAL® STERLING® VULCAN® CRX

SECTION II - INGREDIENTS

Ingredient	CAS Registry No.	Percent	OSHA PEL	ACGIH TLV
Carbon Black	1333-86-4	100	3.5 mg/m^3	3.5 mg/m^3

D.O.T. Hazard
Non-hazardous

Carbon black is listed in OSHA 29CFR 1910.1000,Table Z-1

SECTION III - PHYSICAL DATA

Boiling Point (^oF)	N.A.*	Specific Gravity (H_2O = 1)	1.7-1.9
Vapor Pressure (mm Hg.)	N.A.*	Percent Volatile by Volume (%)	N.A.*
Vapor Density (Air = 1)	N.A.*	Evaporation Rate	N.A.*
Solubility in Water	Insoluble		
Appearance and Odor	Amorphous black solid, no odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

		Flammable Limits	LEL	UEL
Flash Point	N.A.*	Ignition in air above 600^oF	N.A.*	N.A.*

Extinguishing Media: Copious Water
Special Fire Fighting Procedures: Normal fog or nozzle jet application and/or exclusion of air.
Unusual Fire and Explosion Hazards: Carbon monoxide and carbon dioxide are products of combustion. Use appropriate respirator for protection against possible exposure to CO or CO_2. It may not be obvious that the carbon black is burning unless the material is stirred and sparks are apparent.

SECTION V - HEALTH HAZARD DATA

Effects of Exposure

A. Inhalation:

Acute: None known. Possible temporary discomfort due to inhalation of dust concentrations above the Permissible Exposure Limit.

Chronic: Carbon black contains trace amounts of adsorbed polynuclear aromatic compounds (PNA). In non-adsorbed form, some PNA's have been found to be carcinogens in certain studies. No carcinogenic effect has been found in animals or humans due to exposure to carbon black. Carbon black is not considered a carcinogen by IARC, OSHA or NTP.

Epidemiologic studies of workers in the carbon black producing industry in the U.S. and W. Europe show no significant health effects due to occupational exposure to carbon black. Some studies in the USSR and E. Europe report a high incidence of respiratory diseases, including: bronchitis, pneumoconiosis, emphysema and rhinitis. These studies are of questionable validity due to poor design and methodology, lack of adequate controls and extremely high exposures to dust and other materials (e.g., carbon monoxide, coal oil and petroleum vapors).

*N.A. Not Applicable

CAS No. 57455-37-5

MATERIAL SAFETY DATA SHEET

Product/Material	Ultramarine Blue
Manufacturer/Distributor	Whittaker, Clark & Daniels, Inc.
Address	1000 Coolidge Street South Plainfield, NJ 07080
Emergency Telephone No.	(201) 561-6100

Section I - Product Identification

Trade Name	Ultramarine Blue
Synonym	C.I. Pigment Blue 29:77007
Chemical Family	Sodium Alumino Sulphosilicate
Formula	Na6 Al6 Si6 O24 S4
CAS Number	57455-37-5
HMIS	Health 1 Flammability 0 Reactivity 0

Section II - Hazardous Ingredients

None

Section III - Physical Data

Boiling Point (°F)	Not Applicable
Vapor Pressure (mmHg)	Not Applicable
Vapor Density	Not Applicable
Solubility in Water	Insoluble
Specific Gravity	2.25 - 2.35
Percent Volatile by Weight	0
Evaporation Rate	0
Appearance and Odor	Fine blue odorless powder.

CAS No. 57455-37-5

147519
CPD 131
6/88

Section IV - Fire and Explosion Hazard Data

Flash Point	Non-flammable
Flammable Limits	LEL - Non-flammable UEL - Non-flammable
Extinguishing Media	Any
Special Fire Fighting Procedures	None
Unusual Fire and Explosion Hazards	None

Section V - Health Hazard Data

Threshold Limit Values	10mg/M3 (ACGIH)
Effects of Overexposure: Acute Oral Toxicity	LD50 more than 10,000 mg/kg.
Skin Irritation	Non-irritant and non-sensitizing.
Eye Irritation	None
Carcinogenicity	Not listed with NTP, IARC, or OSHA as a known or suspected carcinogen.
Emergency and First Aid	Not applicable. Ultramarine is a non-hazardous product.
Medical Conditions Aggrevated by Exposure	Persons suffering from chronic respiratory diseases may be at increased risk.

Section VI - Reactivity Data

	Product is stable.
Incompatibility	Acids
Hazardous Decomposition Products	With acids, hydrogen sulphide is released.
	Hazardous polymerization will not occur.

147519

CAS No. 57455-37-5

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6-88

Section VII - Spill or Leak Procedures

Steps to take in case material is released or spilled	Normal clean-up procedures. Avoid flushing large quantities into drains. Vacuum cleaning systems are recommended.
Waste Disposal Method	Dispose of in accordance with federal, state and local regulations.

Section VIII - Special Protection Information

None, but avoid excessive nuisance dust. Use of a dust respirator is recommended when exposure limits may be exceeded.

Section IX - Special Precautions

Do not store near acids

Issued: 10/86
Supersedes: 1/86

5/20/88

OPD 13
16.7373
Braintree

Bulletin G-62 RES
Issue Date: January 1985

BFGoodrich

RELEASED JUN 9 1988 CENTRAL QUALITY CONTROL

GEON® VINYL RESIN MATERIAL SAFETY DATA

ABOUT THIS BULLETIN

The data in this bulletin apply to all Geon® vinyl resins. These resins are white, thermoplastic, granular powders manufactured by suspension, dispersion or mass polymerization processes. They are all 100% polyvinyl chloride homopolymer or copolymer. Although properties may vary in terms of molecular weight, particle size, porosity and other characteristics, safety and handling precautions are similar for each resin.

Vinyl resin is normally used in combination with functional additives such as stabilizer, lubricant, pigment, etc. When combined with these other ingredients, the resulting product is commonly called a vinyl "compound." This bulletin does not apply to compound. For information applicable to compound, please read BFGoodrich Bulletin G-62 CMPD, "Material Safety Data, Geon® Vinyl Compound."

The data in this bulletin does not include any information on the suitability of vinyl for any particular application nor does it discuss any precautions that may apply to specific end products. Moreover, this bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to your employees or customers. We must rely on you to use this information to develop appropriate work practice guidelines and employee instructional programs for your operation.

SPECIAL NOTE: Vinyl chloride and polyvinyl chloride (PVC) are not the same material. Vinyl chloride is a flammable gas that is strictly regulated by DOT, EPA and OSHA. Through a chemical reaction, this gas – known as a monomer – is converted to a non-hazardous white granular powder called polyvinyl chloride resin, PVC, or simply, vinyl. Vinyl resin is not a cancer suspect agent. Moreover, the reaction is not reversible. That is, thermal processing or decomposition will not cause polyvinyl chloride to revert back to vinyl chloride monomer. (See Section II and Appendix 1.)

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CPD 131

SECTION I

Manufacturer's Name	The BFGoodrich Company, Chemical Group
Address	6100 Oak Tree Boulevard, Cleveland, OH 44131
Telephone Number	(216) 447-6000
Trademark	Geon® Vinyl
Chemical Name/Synonyms	Poly(vinyl chloride), PVC, vinyl.
Formula	Homopolymer resin: $(CH_2CHCl)_n$
Chemical Family	Ethene, chloro-,homopolymer
CAS Registry Number	Homopolymer resin: 9002-86-2
Transportation Emergency Telephone	CHEMTREC: (800) 424-9300

RELEASED JUN 9 1988 CENTRAL QUALITY CONTROL

- Virtually all Geon® vinyl resins are polyvinyl chloride homopolymer. We do manufacture a limited number of copolymer dispersion resins. These are polymerized with another monomer, e.g., carboxylic acid, vinyl acetate or a vinyl ester.
- Specific grades of Geon® vinyl resin comply with applicable provisions of the U.S. Food and Drug Administration regulations governing food contact (21CFR). Please consult product literature for details.
- Geon® vinyl resins are included in the Toxic Substances Control Act, Inventory of Chemical Substances, developed by the U.S. Environmental Protection Agency.

CPD 131 167373 6-88

SECTION II

HAZARDOUS INGREDIENTS

Vinyl resin contains a very small amount of residual vinyl chloride monomer (CAS Registry Number: 75-01-4). Extensive product and process improvements have resulted in the reduction of residual monomer to average levels less than 1-5 parts per million (ppm) in most prime grades of Geon® vinyl resins. Today, there is virtually no employee exposure to vinyl chloride monomer above the OSHA action level of 0.5 ppm when handling or processing Geon® vinyl resin. Please read Appendix 1 for workplace exposure limits.

Please read Appendix 2 - Hazardous Substances.

SECTION III

PHYSICAL DATA

(Typical data, not specifications)

Inherent Viscosity – 0.50 - 1.16

Specific Gravity – 1.40

Solubility in Water – Slight

Particle Size, microns

Dispersion resin:	0.2-15
Blending resin:	25-130
Suspension resin:	70-150

Appearance and Odor

White, free-flowing powder. Practically odorless or bland odor.

Other

Characteristics such as vapor pressure, vapor density, boiling point and evaporation rate do not apply to solid materials such as vinyl resin.

SECTION IV

FIRE AND EXPLOSION HAZARD DATA

Ignition Characteristics (ASTM D-1929)

Vinyl resin has a flash-ignition temperature of about 391°C (735°F) and a self-ignition temperature of about 454°C (850°F). Vinyl resin by itself will not support combustion because it requires a higher concentration of oxygen for burning than is present in the earth's atmosphere. Vinyl resin can be forced to burn by continuous application of intense heat. Like all combustible material, protect from open flame and maintain proper clearance when using portable heat devices, etc. Store flammable liquids away from vinyl resin.

Flash-Ignition Temperature: The lowest initial temperature of air passing around the specimen at which sufficient combustible gas is evolved to be ignited by a small external pilot flame.

Self-Ignition Temperature: The lowest initial temperature of air passing around the specimen at which, in the absence of an ignition source, ignition occurs of itself, as indicated by an explosion, flame or sustained glow.

Extinguishing Media

Water is most effective. ABC dry chemical, AFFF, and protein type air foams are also effective. Geon™ vinyl resins are "ordinary combustibles" (NFPA defined Class A). Carbon dioxide is not generally recommended for use on Class A fires as a lack of cooling capacity may result in reignition.

Special Fire Fighting Procedure

Wear positive pressure, Self-Contained Breathing Apparatus (SCBA). Personnel not having suitable respiratory protection must leave the area to prevent significant exposure to toxic combustion gases from any source. In enclosed or poorly ventilated areas, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

Combustion Products

When forced to burn, about 97% of the combustion gases from vinyl resin will be a combination of hydrogen chloride, carbon monoxide and carbon dioxide. Other gases will include small amounts of benzene and aromatic and aliphatic hydrocarbons.

The combustion products of vinyl resin, like those from other natural and synthetic materials, must be considered toxic. Like wood, paper and cotton, the major hazard is carbon monoxide. Carbon monoxide is an asphyxiant while hydrogen chloride is an irritant. When vinyl is burned, it will have a detectable, pungent odor.

Unusual Fire and Explosion Hazards

- Hydrogen chloride has a corrosive effect on many metals. Affected equipment surfaces and unprotected structural elements of buildings should be washed to remove corrosive deposits as soon as possible after depositions have occurred.

- Vinyl resin is not considered to be a dust explosion risk. The potential hazard has been evaluated using the Hartmann Vertical Tube Apparatus. Data have also been reported by the National Fire Protection Association (NFPA).

  (1) In the Hartmann apparatus, vinyl resin representing fine particle size (2 Microns), medium particle size (75 Microns) and large particle size (130 Microns) does not ignite or explode in concentrations up to 2.0 gm/liter.

  (2) The NFPA shows "fine" particle size vinyl resin to have a low order of risk.*

Explosibility index:	< < 0.1 (Weak)
Ignition sensitivity:	< < 0.1 (Weak)
Explosion severity:	< 0.1 (Weak)
Ignition temp., dust cloud:	660°C (1220°F)

*Source: NFPA 654-1975, "Prevention of Dust Explosions in the Plastics Industry." < < 0.1 means that ignition of the dust cloud is not obtained by a spark or flame source.

As a precaution, it is prudent to employ standard safety measures used in handling finely divided organic powders.

167373 6-87
CPD 131

SECTION V

HEALTH HAZARD DATA

Threshold Limit Value
None established

Effects of Overexposure

- There are no significant health hazards from vinyl resin at ambient temperature (see Dust Exposure).
- No adverse health effects are expected from processing vinyl resin when potential exposures are minimized by good industrial hygiene practice and adequate ventilation. Nevertheless, at processing temperatures, the sum total of all ingredients in a vinyl-based compound (e.g., vinyl resin, stabilizer, lubricant, modifier, etc.) may emit fumes and vapors that are irritating to the respiratory tract, eyes or skin of some sensitive people. This depends upon processing technique and temperature, volume processed and, most importantly, the effectiveness of exhaust ventilation provided to the process area.
- Inhalation of decomposition or combustion products, especially hydrogen chloride, will cause irritation of the respiratory tract, eyes and skin. Depending on the severity of exposure, physiological response will be coughing, pain and inflammation. Individuals with bronchial asthma and other types of chronic obstructive respiratory diseases may develop bronchspasm if exposure is prolonged.

SPECIAL NOTE: Hydrogen chloride is detectable by its sharp, pungent odor in concentrations as low as 1-5 ppm. Low concentrations (below 50 ppm) are not harmful in short-term exposures, but do provide excellent warning properties by causing coughing or irritation. Because the protective response is so strong, humans rarely submit to damaging concentrations – instead, there is an unmistakable urge to leave the area. Repeated or prolonged exposure to high concentrations can cause eye and respiratory damage. In studies sponsored by the Federal Aviation Administration, no incapacitation, no impairment to escape and no significant post-exposure effects occurred in baboons exposed to hydrogen chloride up to 11,400 ppm (1.14%). OSHA has established a ceiling limit of 5 ppm for workplace exposure to hydrogen chloride.

Emergency and First Aid Procedure
If irritation persists from exposure to processing vapors or decomposition products, remove the affected individual from the area. Call a physician. Provide protection before allowing reentry.

Toxicology Overview
Geon® vinyl resins have been evaluated by studies involving the intracutaneous (skin) and intramuscular injection in rabbits, by studies involving dietary administration (i.e., ingestion) to rats for nearly the lifetime of the animals, and by numerous human patch tests using panels of 50 or more people. No significant reactions, skin irritation, sensitization, or other deleterious effects have been observed in these studies.

Dust Exposure
Vinyl resin has little effect on the lungs and is not known to cause any disease when dust exposure is minimized.

While there is no evidence of a substantial risk to health, a British study found a small decrease in breathing capacity for workers who smoked and were exposed to vinyl resin dust. This decrease was about one-seventh of that caused by normal aging and about equal to that expected with a one-pack-a-day cigarette smoker. There was no significant decrease in breathing capacity from inhalation of vinyl resin dust by nonsmokers.

The American Conference of Governmental Industrial Hygienists' Threshold Limit Value (1984) for nuisance dust is 10 mg/m³ for total dust and 5 mg/m³ for respirable dust. Respirable dust are those particles in a size range below 10 microns. Typical particle size for suspension and mass vinyl resin is 70-150 microns; blending resin is 25-130 microns. Dispersion resin has an average particle size below 5 microns.

Routine inhalation of dust of any kind should be avoided. Exercise care when dumping bags, sweeping, mixing or doing other tasks which can create dust. Where large amounts of any dust may occur, wear a respirator approved by NIOSH/MSHA to protect against nuisance dust.

SECTION VI

REACTIVITY

Stability – Stable
Hazardous Polymerization – Will not occur

Hazardous Decomposition Products
Hydrogen chloride, carbon monoxide, carbon dioxide and small amounts of benzene and aromatic and aliphatic hydrocarbons.

Incompatibility (materials to avoid)
Avoid contact with acetal or acetal copolymers and with amine containing materials during processing. At processing conditions these materials are mutually destructive and involve rapid degradation. Thoroughly purge and mechanically clean processing equipment to avoid even trace quantities of these materials from coming in contact with each other. Prevent cross contamination of feedstocks.

SECTION VII

SPILL OR LEAK PROCEDURE

Steps to be taken in case material is released or spilled
Vacuum or sweep into a closed container for reuse or disposal.

Waste Disposal Method
Dispose of waste in a licensed landfill or by incineration in accordance with federal, state and local regulations. For waste disposal purposes, Geon® vinyl resins are not defined or designated as hazardous by current provisions of the Federal Resource Conservation and Recovery Act (RCRA – 40CFR261). If incinerated, be aware that hydrogen chloride is generated.

16T373 CADL31 6-88

SECTION VIII

SPECIAL PROTECTION INFORMATION

Ventilation
Provide effective exhaust ventilation to draw dust and/or fumes away from workers to prevent routine inhalation. Compounding, hot melt processing (extruding, molding, etc.), cutting or sawing, machining, regrinding, thermoforming, heat welding, and other processing or post-processing operations involving heat sufficient to result in polymer breakdown should be examined to ensure adequate ventilation.

Ventilation guidelines and techniques may be found in the following publications:

- NIOSH Recommended Industrial Ventilation Guidelines; GPO #017-033-00136-7. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 ($9.00 as of December 1984).
- Industrial Ventilation, 18th Edition. Available from the American Conference of Governmental Industrial Hygienists, 6500 Glenway Ave., Bldg. D-5, Cincinnati, Ohio 45211 ($15.00 as of December 1984).

Respiratory Protection
Not normally required. Abnormal conditions such as equipment malfunction, use of improper equipment or procedures, or hangup or stagnation of vinyl-based compound during processing may cause decomposition. Employees involved in removing decomposing material should be provided with suitable air-supplied respirators, such as NIOSH/MSHA-approved positive pressure, self-contained breathing apparatus.

Protective Equipment
Not normally required. Wear protective gloves when handling hot material during processing. Safety glasses are recommended for all industrial workplaces.

SECTION IX

SPECIAL PRECAUTIONS

(For vinyl resin and vinyl-based compound)

Normal Melt Processing. Virtually all thermoplastic materials will emit fumes and/or vapors when heated to processing temperatures. The concentration and composition of these vapors will depend upon variables such as the specific compound formulation and processing method and temperature. Always use vinyl compound under well-ventilated conditions and avoid continued or prolonged breathing of process vapors. For personal hygiene, wash thoroughly after handling resin, especially before eating, smoking or using toilet facilities. Do not store or consume food in processing areas. Do not use processing equipment to heat food.

Cleanup following normal melt processing should be performed under well-ventilated conditions. Compound based upon vinyl resin may be held at process temperatures for a short time without significant thermal degradation. However, it should be recognized that exposure to either elevated temperature or excessive heat history (time) will result in decomposition.* Equipment should not be shut down for extended time periods with vinyl compound in it, or decomposition and possible corrosion of unprotected metal may result. If dies and screws are not to be cleaned manually, then compound should be purged from processing equipment prior to shutdown using special vinyl purge compound or a compatible thermoplastic such as general purpose ABS (do not use flame-retarded or halogen-containing grades for this purpose).

*Time and temperature required to initiate degradation will vary depending upon processing technique, degree of compound stabilization and other factors. As a general rule-of-thumb, degradation begins to occur after about one hour at 177°C (350°F), about ten minutes at 204°C (400°F) and within five minutes at 232°C (450°F).

In case of power loss or other mishap, shut off the machine and dismantle the die assembly as soon as possible before degradation or decomposition begins. If decomposition begins (with gassing and "popping" sounds) before the die can be disassembled, dangerously high pressure may occur in the die system. In this event, shut off the machine, clear the area of personnel and wait until decomposition stops. Thoroughly ventilate the area. Remove and disassemble the die system. These are guidelines only. Refer to technical service reports and equipment manufacturer's recommendations for specific procedures.

Regrinding scrap normally generates substantial heat. Cool regrind before placing it in containers. The excellent insulating quality of vinyl will prevent heat in the center of a container from escaping, potentially resulting in slow thermal decomposition of the material. This may not only render the product unsatisfactory for further processing but also result in fumes and vapors being released into the workplace atmosphere.

Remove vinyl resin from walkways and floors to prevent slippery footing.

Sprinklered warehouse areas are recommended. Although vinyl resin by itself will not support combustion, materials such as wooden pallets, cardboard boxes and other combustibles can provide sufficient fuel to cause vinyl to burn.

Compounding vinyl resin. Many of the common compounding ingredients which are mixed with vinyl resin may require special handling, especially respiratory protection. It is the user's responsibility to obtain and follow the recommended precautions of the individual additive supplier.

SPECIAL NOTE: Vinyl compound at or above normal processing temperature must never be allowed to accumulate in thick masses, or it will begin to thermally decompose and to swell due to internal gassing. Gassing may cause a thick mass to explode if its outside surface is hardened. Molten waste should be collected as strands or flattened to 2-inches or less, and quenched in a drum of cold water provided for this purpose. Decomposing material should be removed to a well-ventilated area, preferably outdoors.

16373
CFD: 131 6-88

SECTION X

TRANSPORTATION

For domestic transportation purposes, vinyl resins are not classified as hazardous by the U.S. Department of Transportation under Title 49 of the Code of Federal Regulations, 1983 Edition.

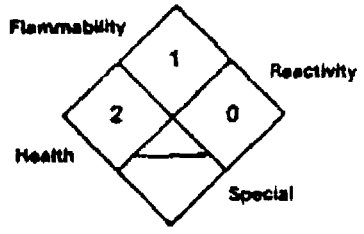
- DOT Proper Shipping Name: Not applicable
- DOT Hazard Class: Not applicable
- DOT Label: Not applicable
- UN/NA Hazard No.: Not applicable

SECTION XI

HAZARD CODES

Hazard Code Key
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

NFPA 704'



HMIS'

HEALTH HAZARD	0
FLAMMABILITY HAZARD	1
REACTIVITY HAZARD	0
MAXIMUM PERSONAL PROTECTION	*

*Wear safety glasses. Wear gloves and/or dust respirator when needed.

(1) National Fire Protection Association.

(2) Hazardous Materials Identification System, National Paint and Coatings Association.

DISCLAIMER OF LIABILITY

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this material. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, express or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state and local laws and regulations remains the responsibility of the user.

APPENDIX 1

VINYL CHLORIDE MONOMER (VCM)

Employee exposure to vinyl chloride monomer (CAS Registry Number: 75-01-4), a carcinogen, is regulated by OSHA (29CFR1910.1017). The current regulation requires that no employee may be exposed to VCM concentrations greater than 1.0 ppm (parts per million by volume) averaged over any eight-hour period or 5.0 ppm averaged over any period not exceeding 15 minutes. The action level is 0.5 ppm averaged over any eight-hour work day.

The regulation applies to the manufacture, packaging, repackaging, storage, handling or use of vinyl chloride or polyvinyl chloride, but does not apply to the handling or use of fabricated products made of polyvinyl chloride. Typically, purchasers of vinyl resin to be compounded or further processed must comply with the permissible exposure limits set by OSHA. Moreover, the regulation requires a program of initial monitoring in each facility to determine if there is any employee exposure in excess of the action level without the use of respirators. If monitoring does not find VCM above 0.5 ppm, no further action is necessary. Refer to OSHA regulations (including 29CFR1910.1017) for complete details.

SPECIAL NOTE: Vinyl Chloride Warning Labels on Resin Containers

Monitoring of vinyl processing and fabricating plants and modeling studies show that the action level (0.5 ppm) cannot be exceeded when residual VCM is at or below 8.5 ppm in Geon® vinyl resin. Shipping containers for these resins are not labeled by BFGoodrich unless a customer specifies otherwise. Vinyl prime, off-grade or scrap resin is labeled if residual monomer exceeds 8.5 ppm. The OSHA regulation requires that the label says "Polyvinyl chloride contains vinyl chloride. Vinyl chloride is a cancer suspect agent."

Polyvinyl chloride resin is not a cancer suspect agent. It is the trace amount of unreacted vinyl chloride monomer that must be controlled, not the vinyl itself.

Although some containers may be labeled, this does not necessarily mean that employee exposure to VCM will exceed permissible exposure limits. Using "worst case" conditions of thermal processing, our studies show that more than 30 ppm of unreacted monomer in vinyl resin is needed to cause 0.5 ppm to be present in the atmosphere of a hot, poorly ventilated workplace. For further information, please read BFGoodrich Technical Service Bulletin No. 12, "Vinyl Studies." Good ventilation in those areas where VCM might concentrate – such as where containers are stored and first opened, where materials are mixed and where resin is melted – will further ensure a work environment virtually free of VCM.

APPENDIX 2

HAZARDOUS SUBSTANCES

167373
CPD 131
6-88

None of the following materials designated as toxic and hazardous by the U.S. Department of Labor (OSHA) are used to manufacture Geon® vinyl resin nor are they anticipated by-products in our production process:

29CFR1910.

1001 Asbestos
1002 Coal tar pitch volatiles
1003 4-Nitrobiphenyl
1004 alpha-Naphthylamine
1006 Methyl chloromethyl ether
1007 3.3'-Dichlorobenzidine (and salts)
1008 bis-Chloromethyl ether
1009 beta-Naphthylamine
1010 Benzidine
1011 4-Aminodiphenyl
1012 Ethyleneimine
1013 beta-Propiolactone
1014 2-Acetylaminofluorene
1015 4-Dimethylaminoazobenzene
1016 N-Nitrosodimethylamine
1018 Inorganic arsenic
1029 Coke oven emissions
1043 Cotton dust
1044 1.2-Dibromo-3-chloropropane
1045 Acrylonitrile
1047 Ethylene oxide

No lead, mercury, other heavy metals or heavy metal compounds and no polychlorinated biphenyls (PCB) or polybrominated biphenyls (PBB) are used to manufacture Geon® vinyl resins. These materials are ubiquitous and trace quantities may be found in the environment.

RJK JAM

CC J. KARIN KLM

MATERIAL SAFETY DATA SHEET

103377

CPD131

(Approved by U.S. Department of Labor as "essentially similar" to Form LSB-005-4)

SECTION I IDENTIFICATION OF PRODUCT

MANUFACTURER: AKRON CHEMICAL COMPANY	EMERGENCY TELEPHONE NO.: 216-535-2108
ADDRESS: 255 Fountain St., Akron, Ohio 44304	
TRADE NAME AND SYNONYMS: AKROSPERSE® D-225 DR	
CHEMICAL NAME AND SYNONYMS: 70% DPTT ACCELERATOR DISPERSED IN EPR POLYMER	
CHEMICAL FAMILY: MIXTURE	MOLECULAR FORMULA: N/A M-CAS# 120-54-7

SECTION II HAZARDOUS COMPONENTS OF MIXTURES

COMPONENT	%	THRESHOLD LIMIT VALUE (UNITS)	COMPONENT	%	THRESHOLD LIMIT VALUE (UNITS)
N/A					

SECTION III PHYSICAL DATA

APPEARANCE AND ODOR: DARK RED RUBBER STRIPS; LITTLE ODOR	
BOILING POINT (DEGREES FAHRENHEIT): NA	SPECIFIC GRAVITY (WATER = 1): 1.30
VAPOR PRESSURE (MM. OF MERCURY): NA	PERCENT VOLATILE (BY VOLUME): NA
VAPOR DENSITY (AIR = 1): NA	EVAPORATION RATE (BUTYL ACETATE = 1): NA
SOLUBILITY IN WATER: INSOLUBLE	EVAPORATION RATE (ETHYL ETHER = 1): NA

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (SPECIFY METHOD) (DEGREES FAHRENHEIT): NA	FLAMMABLE LIMITS (PERCENT BY VOLUME)	LOWER: N/A UPPER:
FIRE-EXTINGUISHING MEDIA: WATER, FOAM, CO_2		
SPECIAL FIRE-FIGHTING PROCEDURES: TYPICAL FOR RUBBER FIRES. WEAR SELF-CONTAINED BREATHING APPARATUS.		
UNUSUAL FIRE AND EXPLOSION HAZARDS: N/A		

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SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
NE

EFFECTS OF OVEREXPOSURE
ELASTOMERIC DISPERSION FORM SUBSTANTIALLY REDUCES OR ELIMINATES RISK OF EXPOSURE BY SKIN CONTACT, INHALATION, ACCIDENTAL INGESTION.

EMERGENCY AND FIRST AID PROCEDURES
SKIN CONTACT-WASH THOROUGHLY AFTER HANDLING.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	NONE

INCOMPATIBILITY (Materials to avoid)
NA

HAZARDOUS DECOMPOSITION PRODUCTS
NA

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	NONE

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
PICK UP AND RETURN CLEAN MATERIAL TO CONTAINER FOR USE. DISCARD CONTAMINATED MB AS ORGANIC CHEMICAL WASTE.

WASTE DISPOSAL METHOD
LANDFILL OR INCINERATION
IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
NONE

VENTILATION	LOCAL EXHAUST	DESIRABLE	SPECIAL	NA
	MECHANICAL (General)	ADEQUATE	OTHER	NA

PROTECTIVE GLOVES: RECOMMENDED	EYE PROTECTION: NONE

OTHER PROTECTIVE EQUIPMENT
NONE

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
STORE BELOW 110°F IN A DRY AREA.

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OTHER PRECAUTIONS
MATERIAL AGED OVER ONE YEAR SHOULD BE TESTED FOR ACCEPTABILITY BEFORE USE.

SECTION X DATE AND SOURCE OF INFORMATION

DATE: 8/28/85	NAME AND TITLE: J. E. MYERS; MANAGER, TECHNICAL SERVICES	SHEET NUMBER

Witco MATERIAL SAFETY DATA SHEET

PRODUCT HYSTRENE® 7218

C.A.S. 27-11-4

SECTION V — SPECIAL PROTECTION INFORMATION

VENTILATION TYPE REQUIRED (LOCAL, MECHANICAL, SPECIAL) [36] LOCAL IF NECESSARY TO CONTROL HEATED FUMES.	PROTECTIVE GLOVES [38] YES. NEOPRENE TYPE
	EYE PROTECTION [39] CHEMICAL SAFETY GLASSES
RESPIRATORY PROTECTION (SPECIFY TYPE) [37] DUST RESPIRATOR AS NEEDED. 3M MODEL 9910 RECOMMENDED.	OTHER PROTECTIVE EQUIPMENT [40] NEOPRENE TYPE PROTECTIVE APRON RECOMMENDED.

SECTION VI — HANDLING OF SPILLS OR LEAKS

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED [41]
REGULAR HOUSEKEEPING PROCEDURES ARE ADEQUATE - MAY BE INCINERATED IF NECESSARY.

WASTE DISPOSAL [42]
DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VII — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE [43]
KEEP CONTAINERS CLOSED UNTIL READY FOR USE AND PROTECT FROM EXCESSIVE (>150°F) STORAGE TEMPERATURES TO PROLONG SHELF LIFE.

SECTION VIII — TRANSPORTATION DATA

[44] UNREGULATED BY D.O.T. [X]	U.S. D.O.T. PROPER SHIPPING NAME [47]	
[45] REGULATED BY D O T [ ]	U.S. D.O.T. HAZARD CLASS [48]	I.D. NUMBER [49]
TRANSPORTATION EMERGENCY INFORMATION CHEM TREC 1-(800) 424-9300 [46]	RQ [50]	LABEL(S) REQUIRED [51]
	FREIGHT CLASSIFICATION [52]	
	SPECIAL TRANSPORTATION NOTES [53]	

SECTION IX — COMMENTS

[54]

RELEASED MAY 8 1989 CENTRAL QUALITY CONTROL

SIGNATURE [signature] TITLE BRUCE MOORMAN REGULATORY COMPLIANCE

REVISION DATE JAN. 1, 1984 SENT TO ATTN: _____ DATE _____

SUPERSEDES ALL PREVIOUS

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind, express or implied, and we assume no responsibility for any loss, damage, or expense, direct or consequential, arising out of their use.

RJK JAM

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CPD131

Witco MATERIAL SAFETY DATA SHEET

PRODUCT HYSTRENE® 9718

C.A.S. 57-11-4

HAZARD RATING: 4 – EXTREME, 3 – HIGH, 2 – MODERATE, 1 – SLIGHT, 0 – INSIGNIFICANT
Fire: 1; Toxicity: 1; Reactivity: 0; Special: —

SECTION I

WITCO MANUFACTURING DIVISION OR SUBSIDIARY
1 HUMKO CHEMICAL

ADDRESS (NUMBER, STREET, CITY, STATE, ZIP CODE)
2 P.O. BOX 125 1231 POPE ST. MEMPHIS TN 38101-108

EMERGENCY TELEPHONE
MANUFACTURER
(901) 320-5800
CHEM TREC 1-(800) 424-9300

CHEMICAL NAME OR FAMILY
3 STEARIC ACID

FORMULA
4 MIXTURE

SECTION II — CHEMICAL AND PHYSICAL PROPERTIES

CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS
5 CO_2 FROM BURNING

INCOMPATIBILITY (KEEP AWAY FROM)
6 N/A

LIST ALL TOXIC AND HAZARDOUS INGREDIENTS
7 CONTAINS NO COMPONENTS LISTED IN 29CFR 1910.1000 TABLES Z-1, Z-2 OR Z-3 NOR ANYTHING IN OTHER PERTINENT SECTIONS OF 29CFR 1910.1001 THRU 1910.1029

PHYSICAL

FORM
8 SOLID, FLAKES, POWDER BEADS

ODOR
9 MILD-TYPICALLY FATTY

APPEARANCE
10 WAXY

COLOR
11 WHITE, OFF-WHITE, LT. TAN

SPECIFIC GRAVITY
12 (WATER = 1) APPROX. 0.875

BOILING PT.
13 ABOVE 315 °C / 600 °F

MELTING PT.
14 APPROX. 67 °C / 153 °F

SOLUBILITY IN WATER
15 AT ____ °C NEGLIGIBLE

% VOLATILE (BY WT %)
16 NEGLIGIBLE

EVAP. RATE
17 (____ = 1) NEGLIGIBLE

VAPOR PRESSURE
18 (mm Hg at 20°C) NEGLIGIBLE

VAPOR DENSITY
19 (AIR = 1) N/A

pH AS IS ____
20 pH (1) ____

21
STRONG ACID ____
STRONG BASE ____
STABLE ____ X
UNSTABLE ____

VISCOSITY SUS AT 100°F
22 < 100 / 100 OR >

23 FOR INDUSTRIAL USE ONLY

SECTION III — FIRE AND EXPLOSION DATA

SPECIAL FIRE FIGHTING PROCEDURES
24 DO NOT USE HEAVY STREAM OF WATER AS FATTY MATERIAL WILL FLOAT.

FLASH POINT (METHOD USED)
26 OPEN CUP APPROX. 202 °C 395 °F

FLAMMABLE LIMITS %
27 NOT AVAILABLE LOWER ____ UPPER ____

UNUSUAL FIRE AND EXPLOSION HAZARDS
25 ONLY HAZARDS USUALLY ASSOCIATED WITH ORGANIC DUSTS.

EXTINGUISHING AGENTS
28 X DRY CHEMICAL X CO_2 X WATERSPRAY X FOAM X WATERFOG X SAND/EARTH OTHER ____

SECTION IV — HEALTH HAZARD DATA

PERMISSIBLE CONCENTRATIONS (AIR)
29 NOT ESTABLISHED

EFFECTS OF OVEREXPOSURE
30 NDA

TOXICOLOGICAL PROPERTIES
31 LD_{50} : >10GM/KG OF BODY WEIGHT

EMERGENCY FIRST AID PROCEDURES
32 EYES WASH EYES WITH WATER AND CONTACT PHYSICIAN IMMEDIATELY.
33 SKIN CONTACT WASH WITH SOAP AND WATER.
34 INHALATION REMOVE TO FRESH AIR.
35 IF SWALLOWED CONTACT PHYSICIAN.

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NA - NOT APPLICABLE . NDA - NO DATA AVAILABLE < - LESS THAN > - MORE THAN

Braintree

R. T. VANDERBILT COMPANY, INC.
Industrial Minerals and Chemicals
30 Winfield Street
Norwalk, CT 06855
(203) 853-1400 TWX 710-468-2940

* * * * * * * * * * * *
* MATERIAL *
* SAFETY *
* DATA SHEET *
* * * * * * * * * * * *

Customer Info:
3410070227 38603

[redacted]

ARMSTRONG WORLD IND.

HANCOCK STREET
SO.BRAINTREE MA 02184

CFD 151
1/91

Date: 10/14/87 Revised: 11/27/85 Supersedes: 07/31/85

I. PRODUCT IDENTIFICATION P38603

Trade Name: SULFADS*

Chemical Name: Dipentamethylenethiuram tetrasulfide

Synonyms: Piperidine, 1,1'-(tetrathiodicarbonothioyl)bis-
CAS Reg. No. 120-54-7

Hazardous Ingredients/OSHA: None

Carcinogenic Ingredients/OSHA/NTP/IARC: None

II. WARNING STATEMENTS

None

III. PHYSICAL AND CHEMICAL DATA

Appearance and Odor: Light yellow to light buff powder

Density, at 25 deg C, Mg/cu m: 1.50

Solubility in Water: Negligible

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(* = Registered in U.S. Patent and Trademark Office)

IV. FIRE PROTECTION

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CPD131
1/91

Flash Point (deg C/deg F): N/A

Extinguishing Media: Foam, dry chemical, carbon dioxide

Special Firefighting Procedure: Positive pressure self-contained breathing apparatus

Unusual Fire Hazard: None known

V. REACTIVITY DATA

Thermal Stability: Stable

Materials to Avoid: Strong oxidizing agents

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: Oxides of nitrogen, sulfur and carbon at combustion temperatures

VI. HEALTH HAZARD DATA

Exposure Limits:

TLV not established

Effects of Overexposure:

None known

VII. PHYSIOLOGICAL EFFECTS SUMMARY

103128
CPD 131
1/91

ipr LD50 >200 mg/kg mice

Medical Conditions Generally Aggravated By Exposure: Unknown.

VIII. PRECAUTIONS FOR SAFE HANDLING

Wash thoroughly after handling the product

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IX. PROTECTION AND CONTROL MEASURES

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CPD131
1/91

Protective Equipment: Rubber gloves, goggles

Respiratory Protection: Dust mask if dusty conditions

Ventilation: Effective ventilation to draw dust, fumes or vapors away from workers to prevent routine inhalation

X. EMERGENCY AND FIRST AID PROCEDURES

Eye Contact: Flush with water for at least 15 minutes. Consult a physician

Skin Contact: Wash with soap and water. Launder contaminated clothing before reuse

Inhalation: Expose to fresh air. Keep warm and quiet. Give artificial respiration

XI. SPILL AND DISPOSAL PROCEDURES

Spill or Leakage Procedure: Sweep spillage. Wet down with soap and water. Place in a closed container

Waste Disposal: Not an RCRA waste. As for organic chemicals accord- to applicable government regulations

For Additional Information Contact:

Environmental Affairs
R. T. VANDERBILT CO., INC.
30 Winfield Street
P.O. Box 5150
Norwalk, CT 06856
Tel. No.: (203) 853-1400

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SPECIAL PROTECTION INFORMATION

Engineering Controls: Sufficient ventilation to minimize dust exposure. Protect closed handling systems against possible dust explosions. Avoid dust accumulation on building or equipment surfaces.

Personal Protection Equipment: Avoid all personal contact. Observe good personal hygiene. Impervious gloves and goggles should be worn when handling. In the absence of adequate ventilation, use NIOSH-certified dust cartridge respirator.

STORAGE, SPILLS AND DISPOSAL INFORMATION

Storage: Store away from sources of direct heat in a dry area. Keep containers closed when not in use.

Spills: Sweep or vacuum up. Shovel into secure containers for proper disposal. Avoid creating dust. Use personal protective equipment as outlined above.

Disposal: In accordance with any applicable local, state, or federal regulation regarding organic waste.

Environmental Information: Environmental effects have not been determined.

HEALTH RELATED DATA

Specific Hazard(s): Contact with eyes or skin can cause irritation.

Primary Route(s) of Entry: Inhalation, skin absorption.

First Aid Procedures: **Eye contact:** Flush with water for 15 minutes. Get medical attention.
Skin contact: Wash thoroughly with soap and water
Inhalation: Remove to fresh air.

Toxicology Information: **Oral toxicity:** LD50 (rats) - > 5 g/kg

Dermal toxicity: LD50 (rabbits) - > 2 g/kg

Irritation: eye (rabbits) - moderate
skin (rabbits) - negative;
positive based on human experience

Genotoxicity: Ames *Salmonella* - negative
CHO HGPRT - negative
L5178Y Mouse lymphoma - weak positive
S. *Cerevisiae* D4 - negative
E. *coli* - negative
Balb/3T3 Cell transformation - negative
CHO chromosome aberration - negative

Chronic: The feeding to mice of 1500 ppm for 18 months did not produce a significant increased tumor incidence.